Measuring refractive index gradient of sugar solution

To measure the refractive index at a particular altitude of a solution with a vertical refractive index gradient, the transparent wedge-shaped container was constructed altogether with the development of mathematical formula derived from Snell's law. The refractive index of the solution can be calculated by measuring the angles of incoming and outgoing laser beams relative to the respective normal line. By varying the height of the laser beam, the refractive index as a function of height of the sugar solution was obtained. This technique is applied to investigate Fata Morgana which is a kind of superior mirage resulting from the bending of light in a medium with a density gradient.

Authors: TANALIKHIT, Pattarapon (Korea Advanced Institute of Science and Technology); WORAKITTHAM-RONG, Thanabodi (King Mongkut's University of Technology Thonburi); CHAIDET, Nattanon (king mongkut's university of technology thonburi)

Presenters: TANALIKHIT, Pattarapon (Korea Advanced Institute of Science and Technology); WORAKIT-THAMRONG, Thanabodi (King Mongkut's University of Technology Thonburi); CHAIDET, Nattanon (king mongkut's university of technology thonburi)